

## ABSTRACT

A high-speed, directly modulated ridge waveguide laser includes: a ridge structure at a junction surface of the laser chip; and a plurality of pads only on non-active areas of the junction surface, where the plurality of pads protrude beyond an edge of the ridge structure. The laser chip can thus be held by a manufacturing tool, such that the manufacturing tool abuts the pads without abutting the ridge structure. In this manner, the ridge structure of the laser is protected from damage due to contacts by manufacturing tools, increasing the device yield of a wafer. By providing the pads only on the non-active areas of the junction surface, parasitic capacitance for contacts in the active areas can be properly controlled.